

8.23 TALBOT COUNTY

This chapter presents information about stream conditions of potential management interest in Talbot County based on the 2000-2004 Maryland Biological Stream Survey (MBSS) results. Information from MBSS data collected between 1994 and 1997 can be found in MDNR 2001u.

8.23.1 Ecological Health

Based on the three ecological health indicators used by the MBSS, the overall condition of Talbot County streams during 2000-2004 was Fair (Figure 8-186). The FIBI results indicate that 23% of the streams in the county were in Good condition, and 66% rated Good using the BIBI. In contrast, 23% of the streams in the county scored as Very Poor using the CBI, while about 28% scored as Good and 50% scored as Fair.

Sites with high IBI scores were generally found in the eastern portion of the county. In contrast, sites in the general vicinity of the Route 50 corridor consistently rated as Very Poor. The highest rated stream in Talbot County using the Combined Biotic Index (CBI) was an unnamed tributary to Tuckahoe Creek, while the lowest rated streams included Tanyard Branch, an unnamed tributary to Windmill Branch and Hunting Creek (Table 8-45). Based on Stream Waders data, sites rated as Poor or Very Poor for benthic macroinvertebrates in the county were outnumbered by sites rated Good or Fair by a factor of two (Table 8-46). Only a single Stream Waders site, in the Wye River watershed, received a rating of Good.

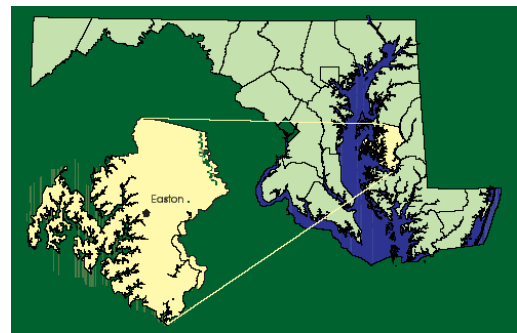
8.23.2 Physical Habitat

8.23.2.1 Overall Condition

Based on the Physical Habitat Index (PHI), only 5% of the streams in Talbot County had Minimally Degraded habitat, 65% had Partially Degraded habitat, and 23% had Degraded habitat (Figure 8-187). No streams in the county were rated as having Severely Degraded habitat. Sites rated as having Minimally Degraded physical habitat were located in the southernmost and westernmost sections of the county.

8.23.2.2 Trash

Over 73% of the stream miles in Talbot County were rated Optimal for trash (Figure 8-188). In contrast, 5% of streams were rated as Marginal and none were rated Poor for trash. No geographic trend was evident.



8.23.2.3 Channelization

About 34% of the stream miles in Talbot County were channelized (Table 8-4). The type of channelization found at MBSS sites was earthen ditches. The channelized sites occurred in the central portion of the county (Figure 8-189).

8.23.2.4 Inadequate Riparian Buffer

No stream miles in Talbot County were devoid of riparian buffers during the 2000-2004 MBSS (Table 8-3; Figure 8-190). In addition, no sites sampled had severe breaks in existing riparian buffers. Additional information about buffer breaks, analyzed by county, is provided in: 2000-2004 Maryland Biological Stream Survey Volume 10: Riparian Zone Conditions (http://www/dnr/Maryland.gov/streams/pubs/ea05-7_riparian.pdf).

8.23.2.5 Eroded Banks/Bedload Movement

Nearly 44% of the stream miles in Talbot County were rated as Poor for bank erosion (Figure 8-191). An additional 22% of streams were rated as Marginal. The remaining 34% of stream miles in the county were rated as having minimal (Optimal) bank erosion problems. There were no apparent geographic trends in the distribution of erosion or bar formation problems in the county.

Nearly 84% of the stream miles in Talbot County were rated as having minor or moderate bar formation (Figure 8-191). An additional 16% had extensive bar formation, while no streams were devoid of bars.

8.23.3 Key Nutrients

8.23.3.1 Nitrate-Nitrogen

Nearly 77% of the stream miles in Talbot County had nitrate-nitrogen levels elevated over 1 mg/l (Figure 8-192). About 33% of all stream miles had levels over

5 mg/l, the threshold at which biological impacts have been documented. No geographic trends were evident, with the exception that the sites around Easton had low levels of nitrate-nitrogen.

8.23.3.2 Total Phosphorus

More than 88% of the stream miles in Talbot County had elevated levels of total phosphorus (Figure 8-193). Over 16% of stream miles had levels above the threshold at which biological impacts may occur. No geographic trends in total phosphorus levels were evident.

8.23.4 Stream and River Biodiversity

To provide a means to prioritize stream systems for biodiversity protection and restoration within each county and on a statewide basis, a tiered watershed and stream reach prioritization method was developed. Special emphasis was placed on state-listed species, stronghold watersheds for state-listed species, and stream reaches with one or more state-listed aquatic fauna. Fauna considered included stream salamanders, freshwater fishes, and freshwater mussels. Rare, pollution-sensitive benthic macroinvertebrates collected during the 1994-2004 MBSS were also used to identify the suite of watersheds necessary to conserve the full array of known stream and river biota in Maryland. A complete description of the biodiversity ranking process is found in: 2000-2004 Maryland Biological Stream Survey Volume 9: Stream and Riverine Biodiversity (http://www/dnr/Maryland.gov/streams/pubs/ea05-6_biodiv.pdf).

Of the four watersheds found in Talbot County, Tuckahoe Creek and Upper Choptank River were classified as Tier 1, meaning that these watersheds serve as strongholds for one or more state listed aquatic species (Figure 8-194). In contrast, the Honga River/Little Choptank River/Lower Choptank watershed was among the lower ranking for stream and river biodiversity in the state (61st of

84). Any reaches that had either state-listed or GCN species, or high intactness values were highlighted to facilitate additional emphasis in planning restoration and protection activities.

8.23.5 Stressors

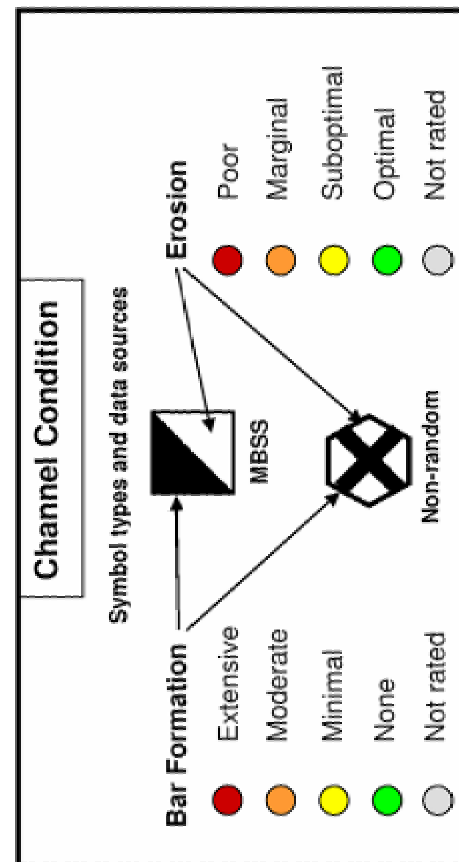
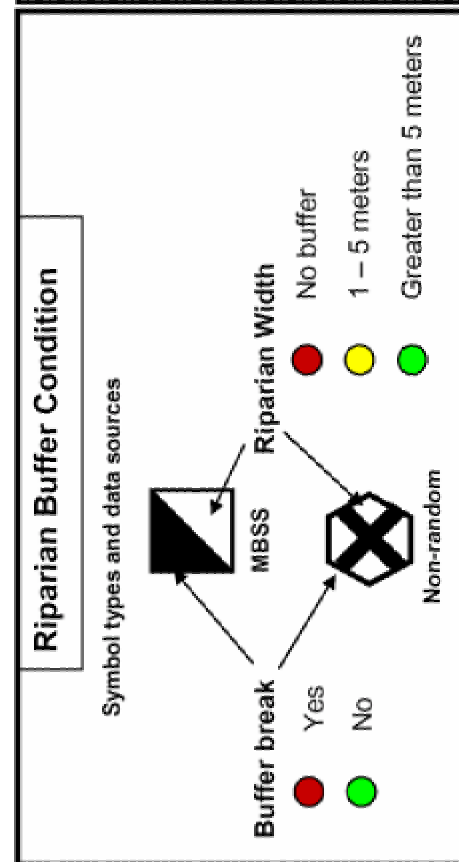
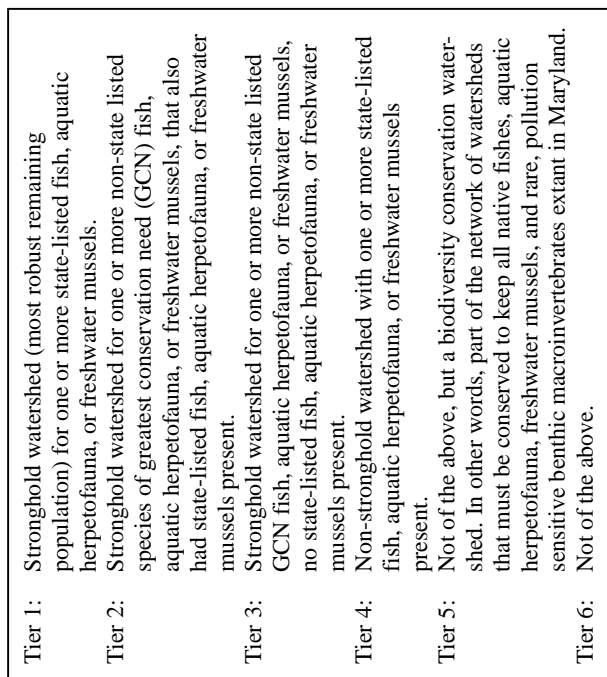
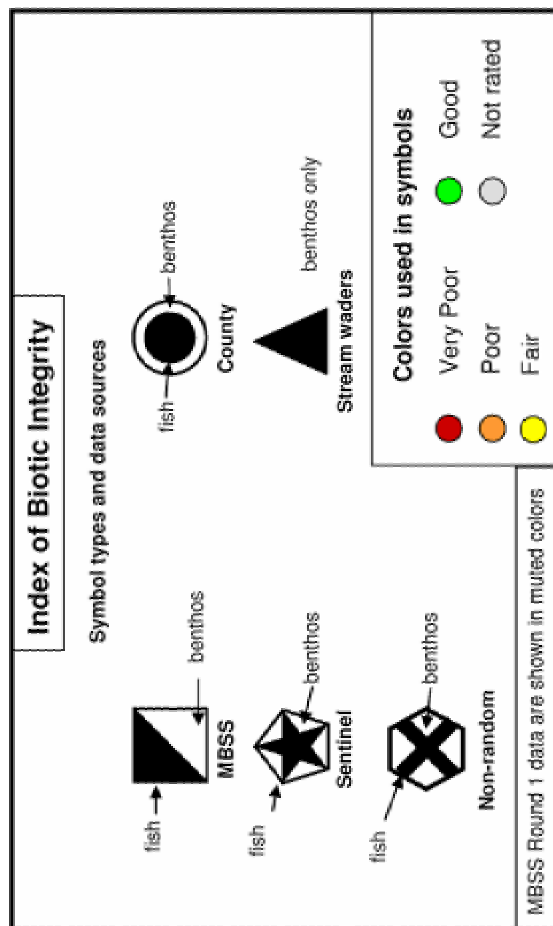
At 78% of stream miles, the most extensive stressor characterized by the MBSS in Talbot County during the 2000-2004 MBSS was non-native terrestrial plants in the riparian zone (Figure 8-5). Other stressors found were: streams with eroded banks (66% of stream miles); non-native aquatic fauna (present in 66% of stream miles); low dissolved oxygen (23% of stream miles); channelized streams (observed in 23% of stream miles); high nitrate-nitrogen (33%); and streams with > 5% urban land use upstream (16% of stream miles).

AN IMPORTANT NOTE ON BIODIVERSITY MANAGEMENT

Perhaps the largest ongoing natural resources restoration and protection effort in Maryland is associated with the Chesapeake Bay. In most cases, freshwater biodiversity is not specifically considered during placement and prioritization of Bay restoration and protection projects. In this report and in the more detailed volume in the series on aquatic biodiversity, a system of biodiversity ranking is presented to provide counties and other stewards with a means to plan appropriate protection and restoration activities in locations where they would most benefit stream and river species. Given the historically low level of funding for biodiversity protection and restoration in Maryland and elsewhere, the potential benefit of incorporating freshwater biodiversity needs into other efforts is quite large.

However, it is important to note that although freshwater taxa are the most imperiled group of organisms in Maryland, other groups and individual species not typically found in freshwater habitats are also at high risk and constitute high priority targets for conservation. In addition, freshwater taxa that prefer habitats such as small wetlands may not be well-characterized by the ranking system employed here. To conserve the full array of Maryland's flora and fauna, it is clearly necessary to use other, landscape-based tools and consider factors such as maintaining or reconnecting terrestrial travel corridors.

Key to MBSS 2000-2004 County Maps



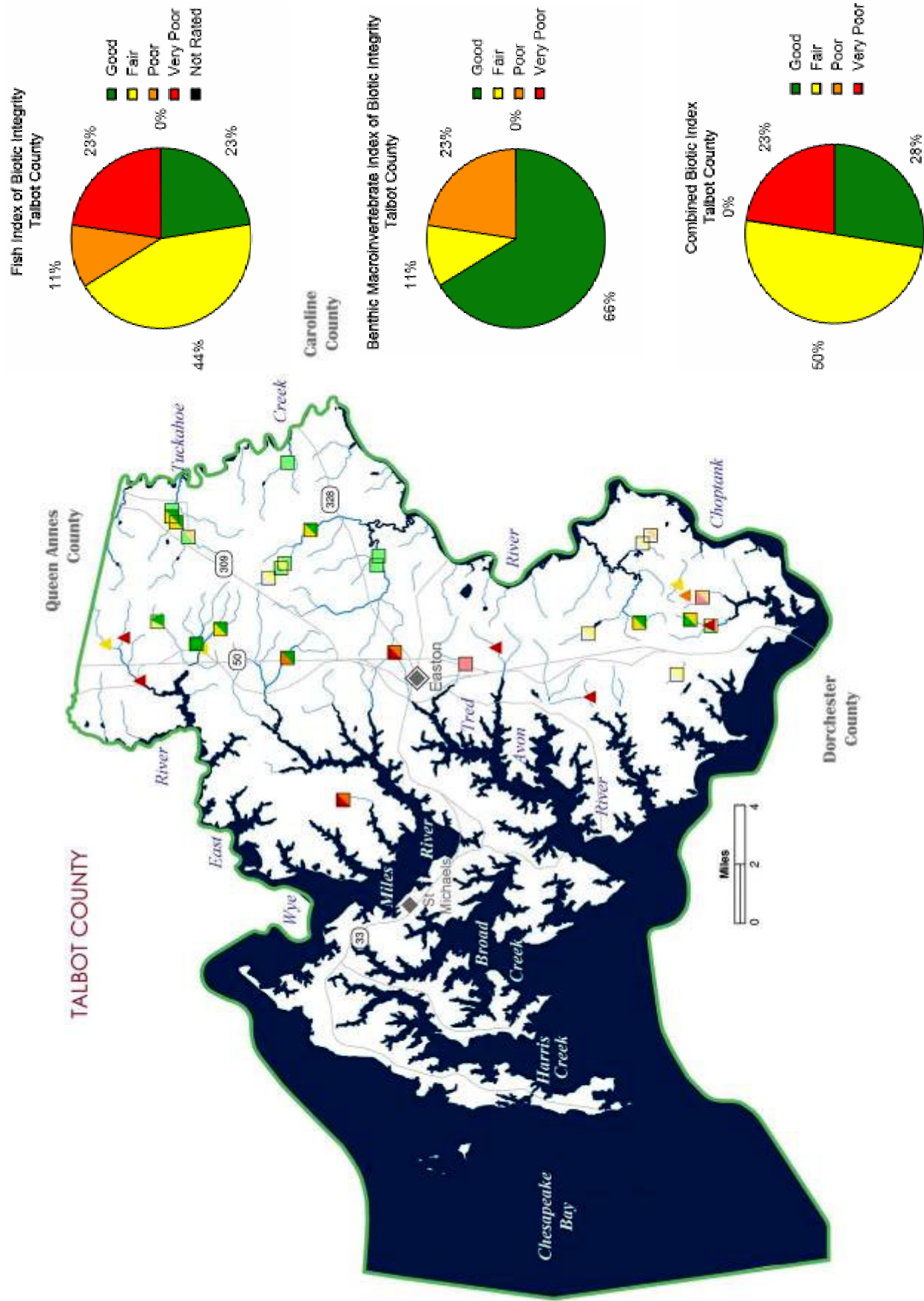


Figure 8-186. Benthic Index of Biotic Integrity (BIBI) and Fish Index of Biotic Integrity (FIBI) pie charts and map of stream health for Talbot County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie charts represent 2000-2004 data only, Combined Biotic Index pie chart represents mean of FIBI and BIBI)

Table 8-45. MBSS sites sampled in Talbot County during 1994-2004, ranked by Combined Biotic Index Score (CBI)

Table 8-46. Stream Waders sites sampled in Talbot County during 2000-2004, ranked by Family-level Benthic Index of Biotic Integrity

Talbot County - Stream Wader Sites				
WATERSHED	# GOOD	# FAIR	# POOR	# VERY POOR
Choptank Lower	0	1	1	3
Choptank Upper	0	10	6	16
Wye River	1	2	0	2

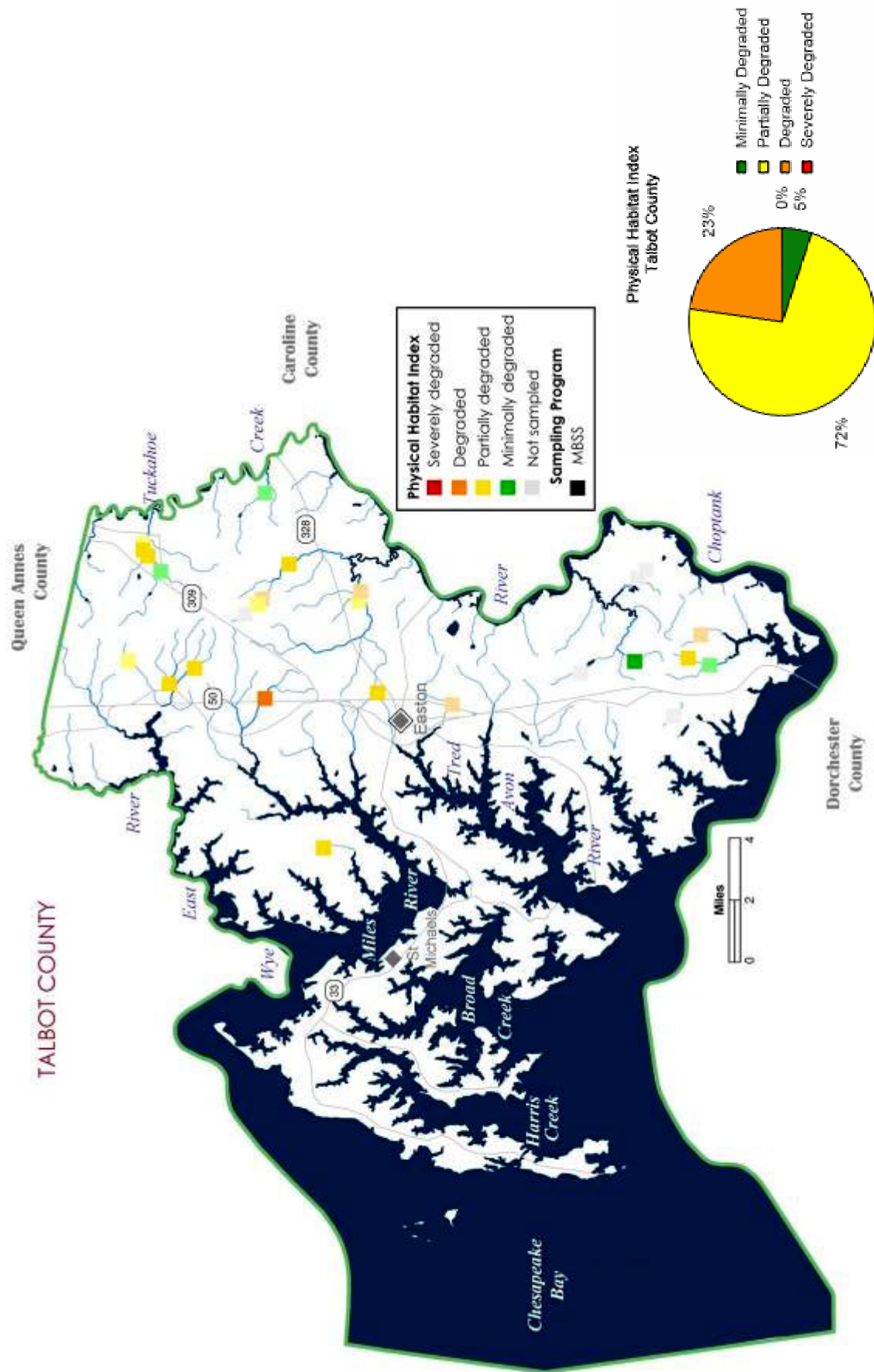


Figure 8-187. Physical Habitat Index (PHI) pie chart and map of stream habitat quality for Talbot County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only)

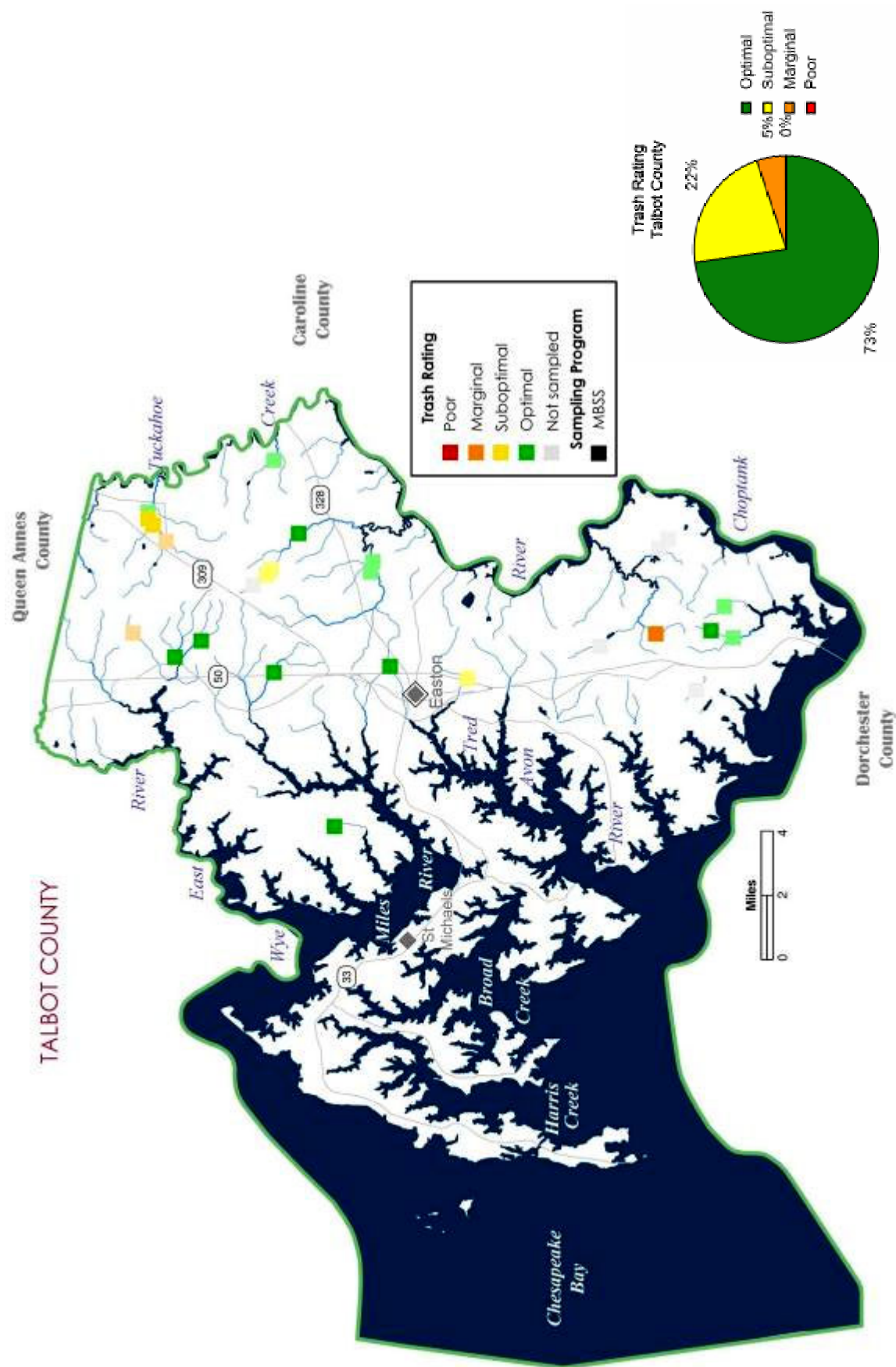


Figure 8-188. Pie chart and map of trash rating (0-20 scale) for Talbot County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only)

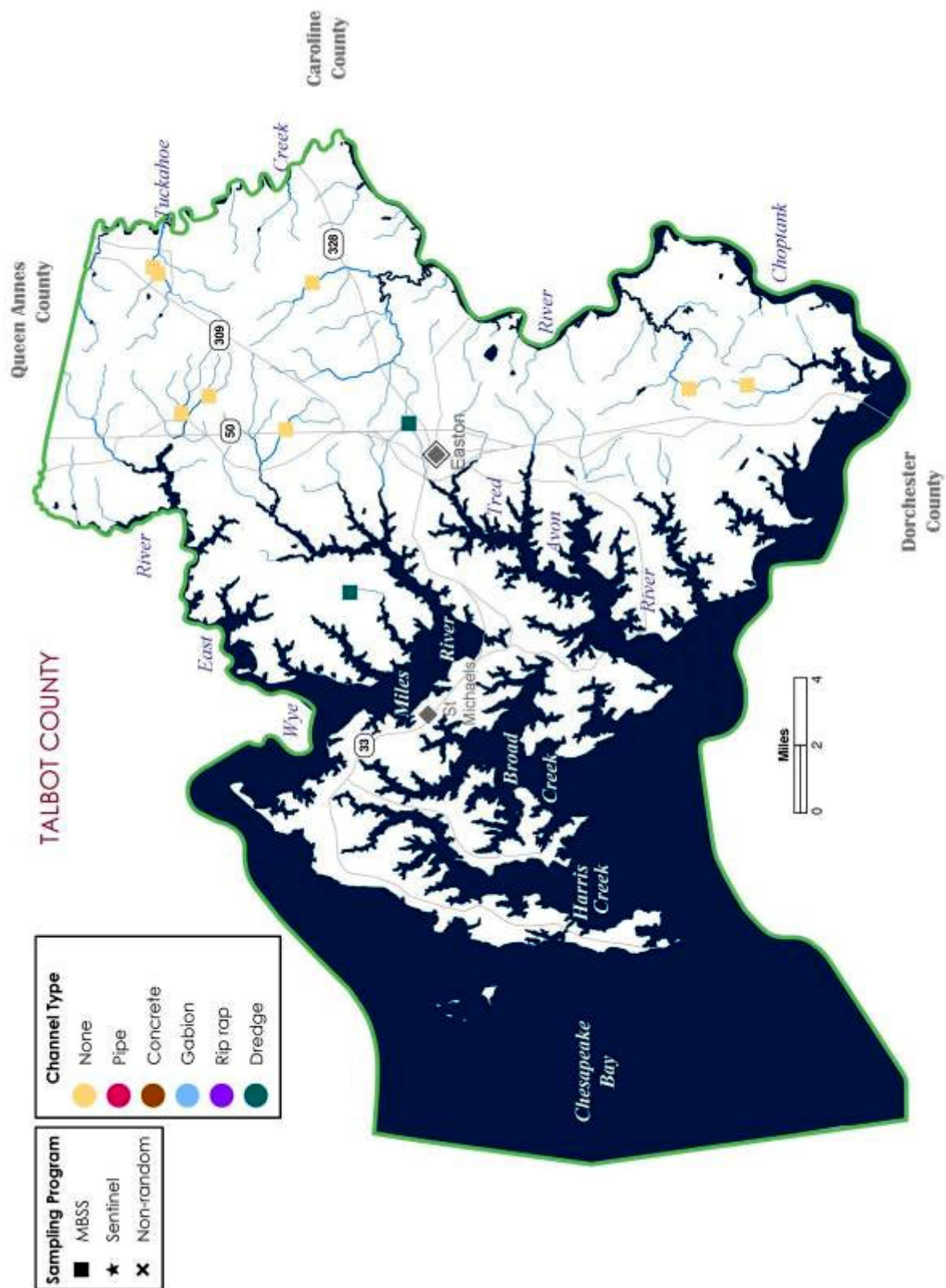


Figure 8-189. Map of channelized sites, by type, for Talbot County streams sampled by the MBSS during 2000-2004. NOTE: When channelization is indicated, it does not necessarily mean that the entire 75m segment was affected.

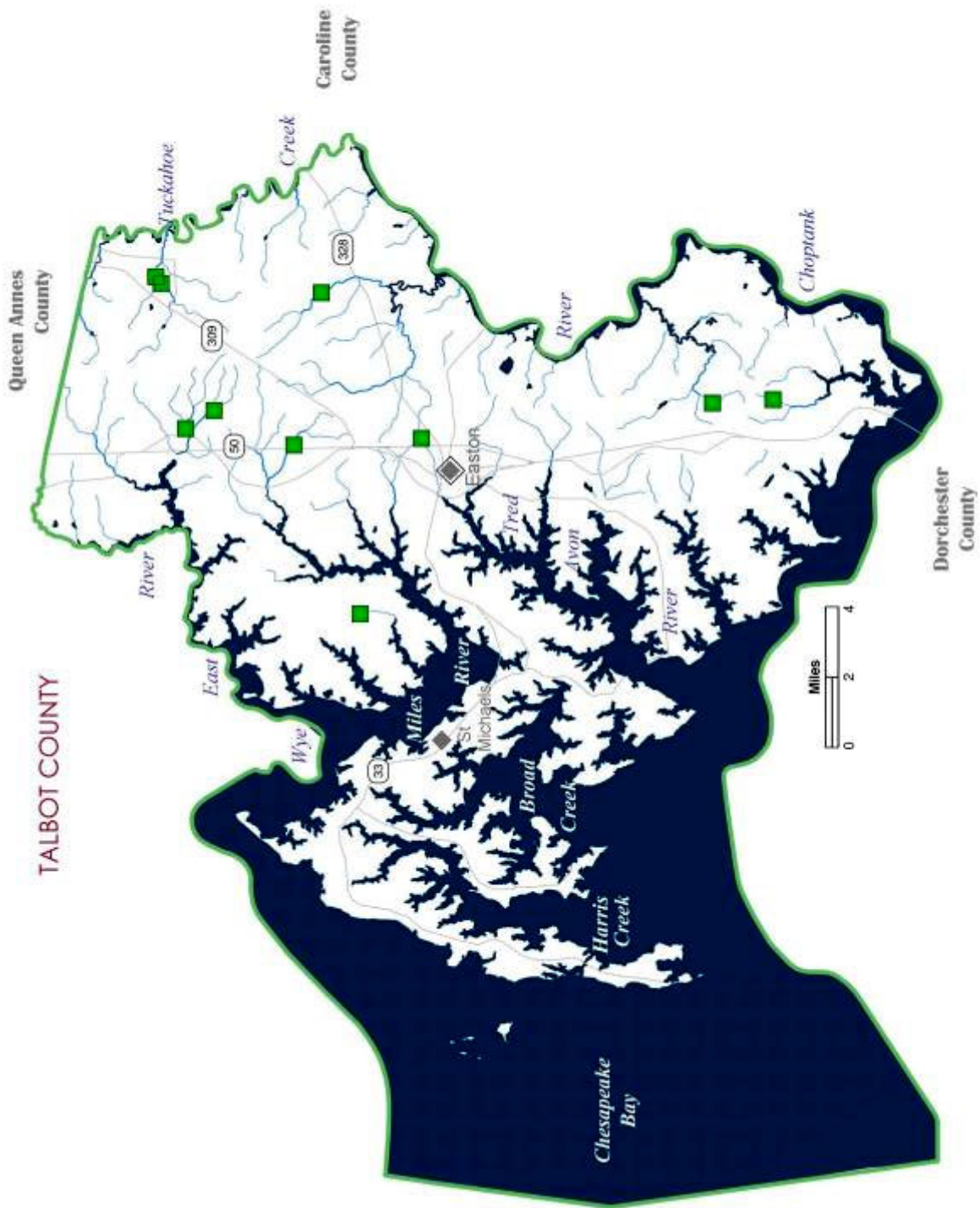


Figure 8-190. Map of sites with inadequate riparian buffers and buffer breaks for Talbot County streams sampled by the MBSS during 2000-2004

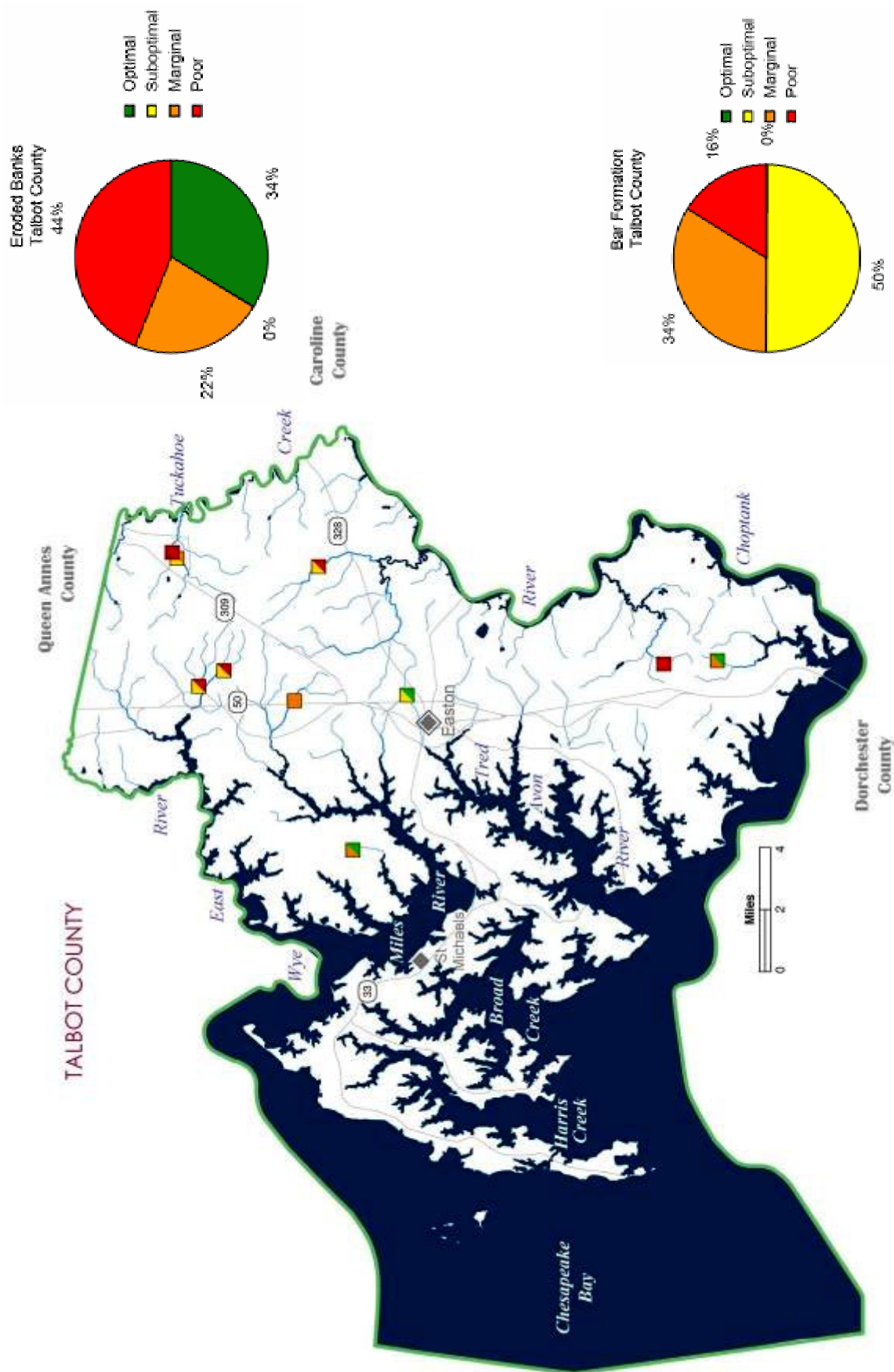


Figure 8-191. Pie charts and map of sites with eroded banks and instream bar formation for Talbot County streams sampled by the MBSS during 2000-2004

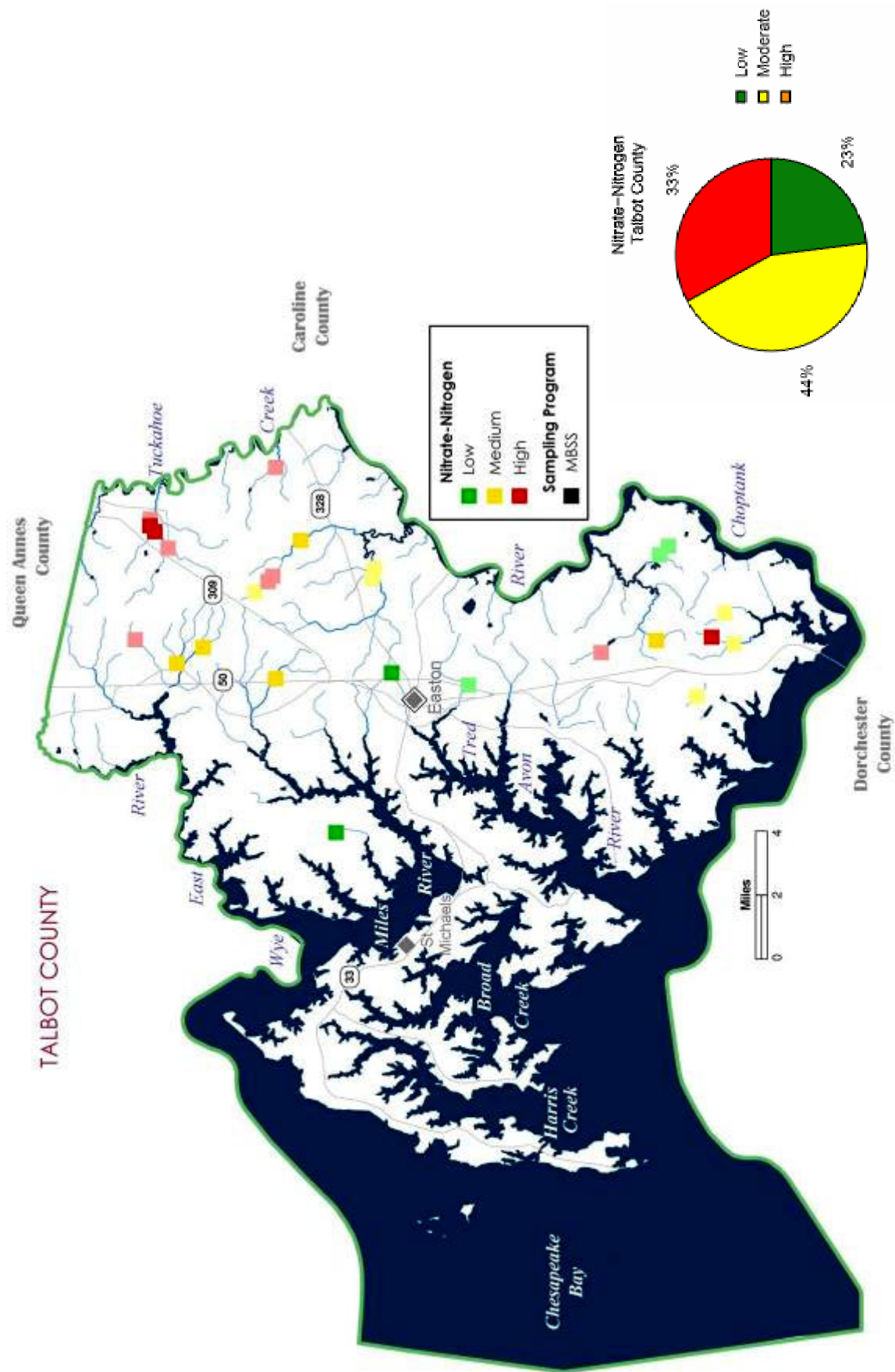


Figure 8-192. Pie chart and map of nitrate-nitrogen values (mg/l) for Talbot County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only) (Low = 1.0 – 5.0, Medium = 1.0 – 5.0, High = > 5.0)

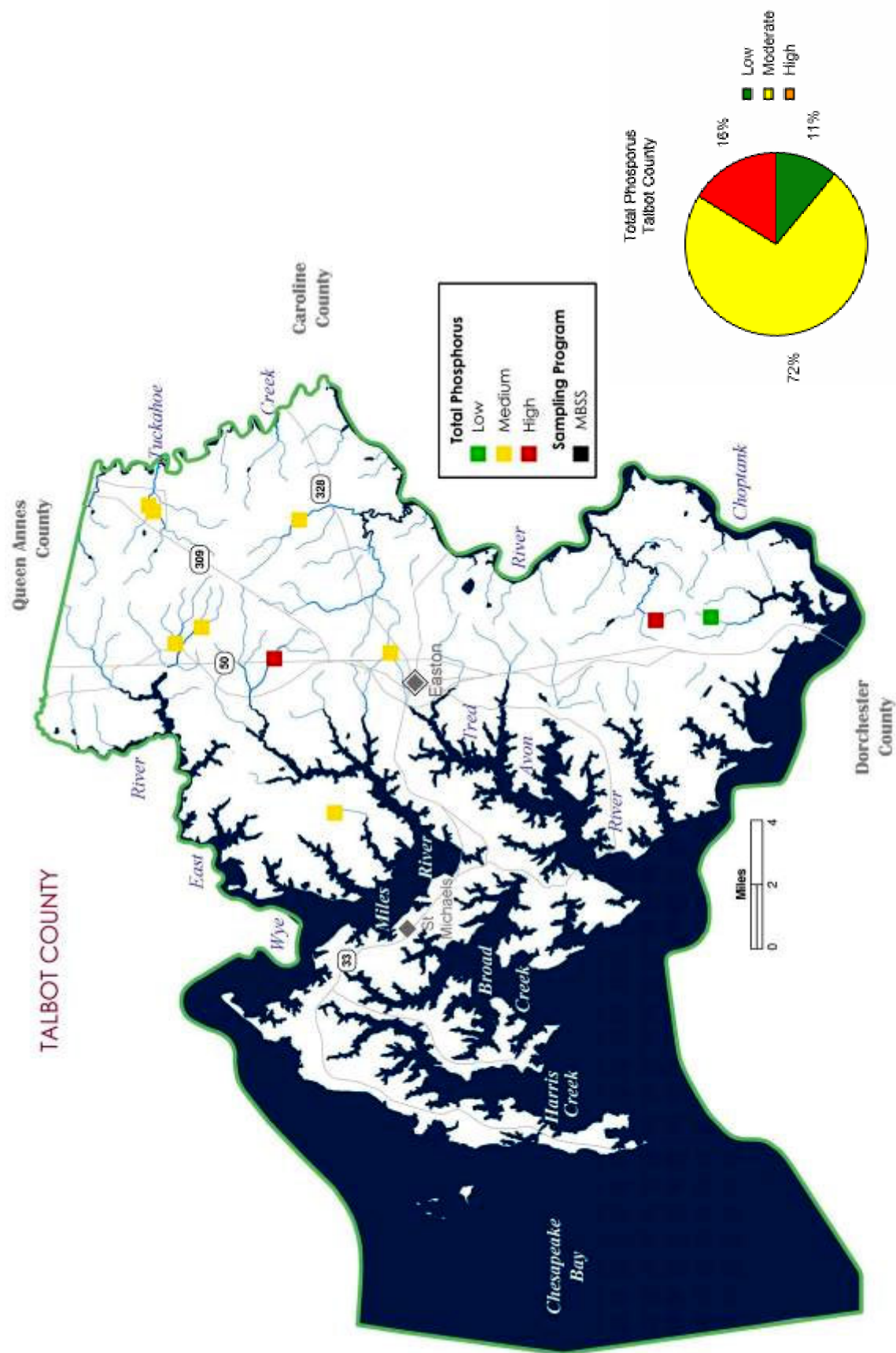


Figure 8-193. Pie chart and map of total phosphorus values (mg/l) for Talbot County streams sampled by the MBSS during 2000-2004 (Low = < 0.025, Medium = 0.025 - 0.07, High = > 0.07)

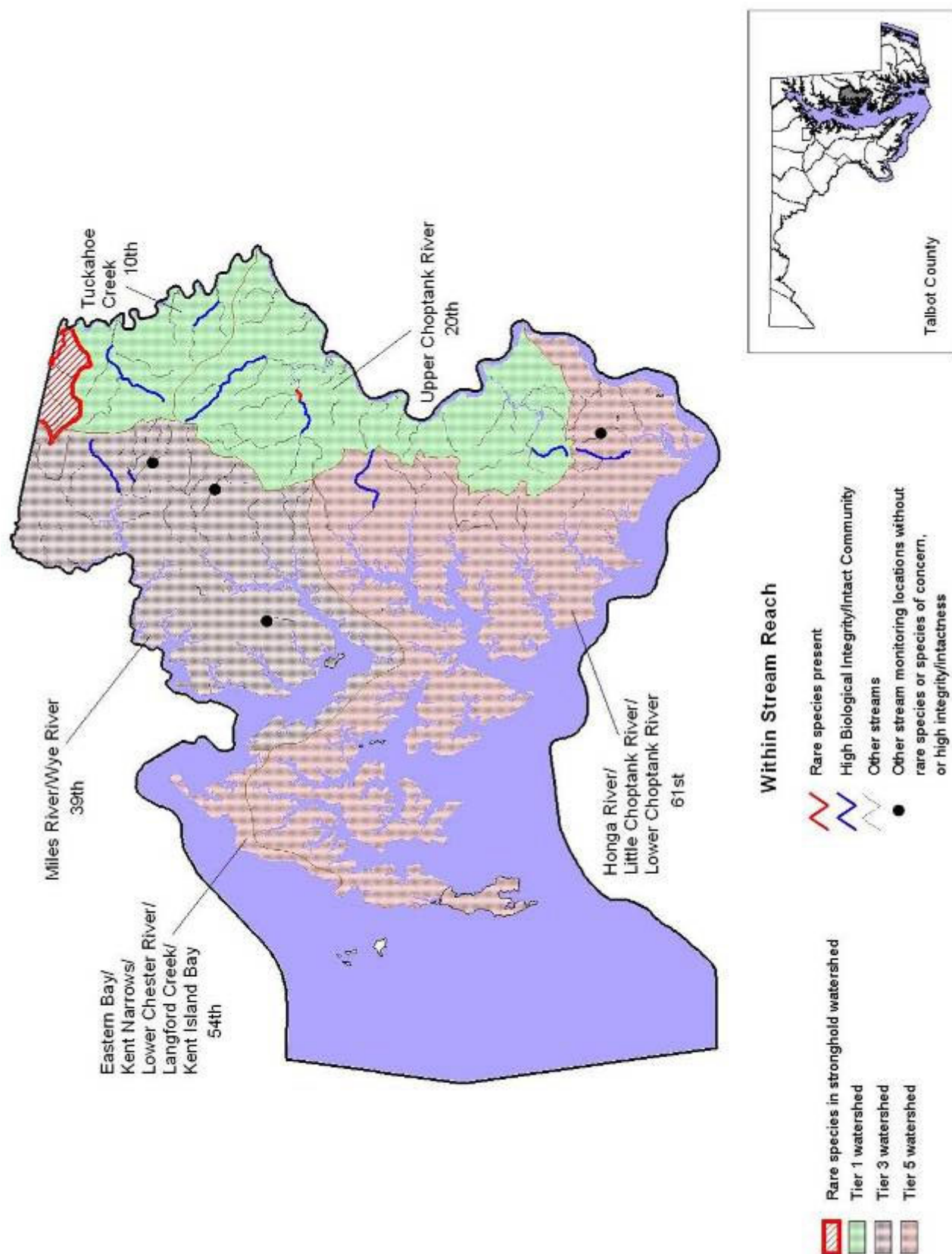


Figure 8-194. Aquatic Heritage Biodiversity Ranking map for Talbot County, by watershed. Data from MBSS 1994-2004, MBSS qualitative data, Raesly, unpub. data, Harris 1975, Thompson 1984, and DNR Natural Heritage Program database.